

To: Users of the "Guide to Implementing the Core Food Security Module" (FCS September 1997)
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Subject: Updated procedures and corrections to the "Guide to Implementing...."

Since the publication of the "Guide to Implementing the Core Food Security Module" by the Food and Nutrition Service (FNS, previously the Food and Consumer Service), the standard procedures for measuring food security and hunger have undergone further refinement and development based on ongoing research within the Federal food security measurement project. This memorandum documents changes and corrections which bring the procedures described in the "Guide to Implementing...." up to the current state of the art. Included are:

- General information on adaptations of the measure for particular survey uses;
- Small changes and corrections and updates to the core module questionnaire for consistency with the standard form established for the CPS beginning in 1998;
- Corrections of errors in the published scale-score thresholds for assigning households to food security status categories;
- Major changes and simplification in scoring households with partially missing data.

General information:

The "Guide to Implementing...." describes the core 18-item module with a 12-month time reference. The questionnaire items may be modified to a 30-day reference period by changing the "last 12-month" references to "last 30 days." In this case, items 8a, 12a, and 14a should be changed to read as follows:

8a/12a/14a [IF YES ABOVE, ASK] In the last 30 days, how many days did this happen?
 _____ days
 [] DK

If some other time reference is more appropriate for your research needs, the instrument can be adapted accordingly. Let us know and we can discuss what is known and not known about adapting the core to that time reference.

Questionnaire items 1, 1a, and 1b are not part of the actual scale and are optional. Question 1 has a long history of use in USDA national food surveys and, in modified form, in NHANES and other surveys, so it can provide a single-question measure which has some tie-in to earlier literature, even though it is not as good a measure as the 18-item set. Question 1 also may be used along with household income to construct a preliminary screener in order to further reduce burden for higher-income respondents. Households with income above twice the poverty threshold, AND who respond <1> to Question 1 may be skipped to the end of the module and classified as food secure. Use of this preliminary screener reduces total burden in a sample which includes many higher-income households, and the loss of sensitivity in identifying food insecure households is not great. However, research has shown that a small proportion of the higher-income households screened out by this procedure will register food insecurity if administered the full module. If Question 1 is not needed for research purposes, a preferred strategy is to omit Question 1 and administer Stage 1 of the module to all households. Administration time for Stage 1 is very nearly the same as administration time for the preliminary USDA food sufficiency question/screener.

Except for those questions, the Guide presents just the core 18 items that form the Federal food security scale. However, the Current Population Survey (CPS) Food Security Supplement questionnaires include additional questions about topics which may be of interest for your survey, including food spending, food program use, and household strategies to cope with food shortage. The CPS Food Security Supplement questionnaires are available from FNS or ERS, or from the ERS web site. Note that the food spending series has varied from year to year in the level of detail collected, so you may want to compare several years' questionnaires.

If even the bare 18 items are too many for your survey, we do have a 6-question version, but we have less confidence in it, and it does not measure the more serious end of the scale (where child hunger occurs).

Updates and corrections to the core module questionnaire:

The following lead-in/transition to the food security module is recommended (replacing the first sentence of question 1 in the Guide):

“These next questions are about the food eaten in your household in the last 12 months and whether you were able to afford the food you need.”

This change was introduced in the CPS Food Security Supplement beginning in 1998 to highlight the “affordability” issue, thus avoiding possible confusion in respondents’ minds about the intent of the questions.

The skip instructions before Question 5 should be revised so that households without children are not skipped past the 1st-level screener.

These two changes, as well as several small wording changes in Question 1 are incorporated in the updated core module questionnaire (revision date 6/23/99) available on this web page.

Correction to the thresholds for assigning households to food security status categories:

Important corrections must be made to Exhibit 2-6, page 24, which specifies the thresholds for assigning households to the appropriate food security status category based on their scale score. ***The thresholds shown in the Guide are incorrect and will result in misclassification of households.*** The following table should replace Exhibit 2-6:

Exhibit 2-6 (Corrected 5/24/99)
CORRESPONDENCE BETWEEN SCALE VALUES AND FOOD SECURITY STATUS

Scale Value	Food Security Status	
	Code	Category
0.0 to 2.0	0	Food secure
2.1 to 4.3	1	Food insecure without hunger
4.4 to 6.6	2	Food insecure with moderate hunger
6.7 to 10.0	3	Food insecure with severe hunger

Changes in scoring households with partially missing data:

The information in the Guide on how to score households which responded to some, but not all, questions was based on assumptions from item response theory (mostly from educational testing) about the character of missing data. Further examination of those assumptions and of the actual patterns of missing items in the CPS Food Security Supplements has led the Federal Food Security Measurement Project to adopt a much simpler set of procedures which we believe is more appropriate for the food security data. The following information supersedes pages 22 and 23 in the Guide as well as Appendices B, C, and D - altogether well over half of the Guide.

Fortunately, experience to date with the core food security module is that item nonresponse is very rare. That is, if a respondent agrees to begin the module, he or she generally gives valid answers to all questions asked. Only about one-half of one percent of households refused or didn't know the answer to any question in the module. The new methodology imputes responses for missing items based on valid responses the same household gave to other items. Following imputation, the households are scored using the same methods as are used for households with complete responses (pages 20 and 21 in the Guide).

The imputation procedures are based on the ordered character of the items in the Food Security Module. That is, the items vary in severity across a wide range, and their severity ordering tends to be stable across households. As a result, a household that affirms an item will generally affirm all less severe items, and a household that denies an item will generally deny all more severe items. The ordering is not perfect, but it is consistent enough to provide a defensible basis for imputing the relatively rare item nonresponse typically encountered in applications of the module. The imputation procedures are as follows:

- (1) Items are imputed for the purpose of scoring and classifying households only. If you plan to submit your data for Rasch scaling to test whether the response structure in your sample is as expected, or to compare it with that of other samples, use the pre-imputation data.
- (2) Responses to items that are specifically referenced to children are not imputed for households without children. These items remain missing and are not counted as either yes or no. The two kinds of households have different scoring charts (see Exhibit 2-5).
- (3) Preparatory to imputation, order the 18 items by severity. (Note the order of items in the "core module" questionnaire corresponds only approximately with item severity, deviating somewhat to improve the interview flow.) The following order is suggested, based on item calibrations from the 1998 CPS Food Security Supplement. This order differs slightly from that based on the original (1995) food security scaling research (Hamilton et al., 1997), probably due to the 1998 redesign of the CPS Supplement, which reordered the questionnaire and applied the two internal screeners. Since the "core module" questionnaire follows the 1998 CPS question order and uses the internal screeners (1st-level screen and 2nd-level screen), data from surveys using this form are more likely to be consistent with the item-severity order observed in the 1998 CPS data.

- Q2 - Worried food would run out
- Q3 - Food bought just didn't last
- Q5 - Relied on few kinds of low-cost food for children
- Q4 - Couldn't afford to eat balanced meals
- Q6 - Couldn't feed the children a balanced meal
- Q8 - Adult cut size of meals or skipped meals
- Q9 - Adult ate less than felt they should

Q8a - Adult cut size of meals or skipped meals in 3 or more months
 Q7 - Children were not eating enough
 Q10 - Adult hungry but didn't eat
 Q11 - Respondent lost weight
 Q13 - Cut size of children's meals
 Q12 - Adult did not eat for whole day
 Q15 - Children were hungry
 Q12a - Adult did not eat for whole day in 3 or more months
 Q14 - Children skipped meals
 Q14a - Children skipped meals in 3 or more months
 Q16 - Children did not eat for whole day

Alternatively, item severity order can be based on your own survey. For households with children and with complete data, calculate the proportion of households that affirmed each item. Items affirmed by higher proportions of households are less severe.

(4) Impute "yes" to a missing item if, for that household, there is a valid affirmative response to at least one item more severe than the missing item **and** no negative response to any item less severe than the missing item.

(5) Impute all other missing items as "no." (Note that this procedure, adopted for the national standard benchmark method, is methodologically conservative, tending to minimize false positives.)

Examples (y=yes, n=no, x=missing):

yyxxynnnnnnnnnnnnnnn Impute the missing responses as "yes." There is a more severe "yes" response and no less severe "no" response.

yyyyxnnnnnnnnnnnnnnnn Impute the missing response as "no." There is no more severe "yes" response.

yyyyynxynnnnnnnnnnnnn Impute the missing response as "no." There is a more severe "yes," but there is also a less severe "no" response.

(6) Determine if cases with very few valid responses have enough information to be imputable or if the entire case should be declared missing (i.e., unscalable - food security status unknown). There are no hard and fast rules for this. It depends somewhat on how good you believe the partial data you have are, and to what purpose you intend to put the results. If a household gave no valid responses to any core item, then it should almost certainly be declared unscalable. Note that a household could refuse all of the first stage questions and then be skipped out of the rest of the questionnaire at the 1st-level screener. For such a household, it is probably not appropriate to score the skipped questions as "no" responses. Rather, those responses should also be assigned as missing and the household should be classified as unscalable/food security status unknown.

If there are valid responses to 3 or more questions, imputation is almost always appropriate. Imputation may be appropriate based on even 1 or 2 valid items if you believe that the responses given were based on understanding of the question(s) and thoughtful response. On the other hand, if answers are thought to be erratic or confused, a household with only 1 or 2 valid items might more appropriately be considered

unscalable. It is best to adopt a “minimum information” standard and apply it to all households in the survey.

Keep in touch:

USDA is very interested in both the substantive results you get as well as what your survey can tell us about the measurement methodology. As the guide explains, you can calculate household scale scores and assign food security status categories from the items by a simple additive process without using Rasch modelling software. With the imputation procedures suggested here, this capability now extends even to households with missing items. However, we would like to see how the items behave in your survey, so ERS is prepared to run your data through the Rasch modelling software upon request, to test how consistently they scale compared with the CPS national sample (unless you plan to do so). This will provide you with additional information such as standard Rasch model fit statistics for your survey data as well, so we hope you will be interested.

Please feel free to call or email if we can provide any help.

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